## CHAPTER OVERVIEW

This chapter provides a general description of childhood disorders/impairments and related symptoms and mode of treatment. It is provided for informational purposes only. All health problems/medical conditions should be diagnosed and treated by the appropriate medical personnel.

**Hydrocephalus** (hydro, water + cephalo, head) is a condition characterized by an increase of cerebrophinal fluid in the ventricles of the brain, which causes an increase in the size of the head and pressure changes in the brain. Hydrocephalus may be congenital or acquired. It is most commonly caused by an obstruction such as a tumor or improper formation of the ventricles. The classic symptom is an increase in the head size. This condition may be corrected by surgically implanting a shunt to bypass the point of obstruction.

**Spina Bifida** (divided spine) is a congenital embryonic neural tube defect in which there is an imperfect closure of the spinal vertebrae. Spina bifida occulta is a relatively minor variation of the disorder in which the opening is small and there is no associated protrusion of structures. Generally, treatment is not necessary unless neuromuscular symptoms appear. Spina bifida cystica consists of the development of a cystic mass in the midline of the spine. The prognosis of these conditions depends on the extent of the involvement. When warranted, surgery is usually performed within the first 24 hours of life and followed by habilitation to minimize the child's disability.

**Congenital Heart Disease** (CHD) is a defect in the structure of the heart and/or in one or more of the large blood vessels that lead to and from the heart. A mother who contracts German measles early in her pregnancy or who is poorly nourished may bear a child with a faulty heart. Alcoholism, advanced age of mother and genetic factors may also contribute to congenital heart disease. Children with mild cases of CHD can lead fairly normal lives under medical management. Children with more serious cases may require cardiac surgery.

**Cleft Lip** (Harelip) is characterized by a fissure or opening in the upper lip and is a result of the failure of the embryonic structures of the face to unite. In many cases it seems to be caused by hereditary predisposition coupled with a minor deviation of the intrauterine environment. This disorder appears more frequently in boys than girls and may occur on one or both sides of the lip. Babies with cleft lip are unable to suck and have difficulty eating. Surgery improves baby's ability to suck and his appearance.

**Cleft Palate** is more serious than a cleft lip. It forms a passageway between the nasopharynx and the nose which complicates feeding and leads to infections of the respiratory tract and middle ear. Cleft palate is also responsible for speech difficulties in later life. Unlike cleft lip, cleft palate is more common in females than in males.

Corrective surgery is usually performed before the child reaches the age of 18 months. A dental appliance is used to facilitate speech when surgery has been deferred or

counter indicated. The dental appliance must be changed periodically as the child grows.

**MUSCULOSKELETAL SYSTEM**

**Clubfoot** is one of the most common deformities of the skeletal system. It is a congenital anomaly characterized by a foot that has been twisted inward or outward. The treatment of clubfoot should be started as early as possible, otherwise the bones and muscles will continue to develop normally. Conservative treatment, consisting of manipulation and casting to hold the foot in the correct position, is carried out during infancy.

**Congenital Hip Dysplasia** is a common orthopedic deformity. The head of the femur is partly or completely displaced from a shallow hip socket. Both hereditary and environmental factors appear to be involved in the cause. Congenital hip dysplasia is seven times more common in females than in males. Newborn infants seldom have complete dislocation. When the baby begins to walk, the pressure exerted on the hip can cause a complete dislocation. The course of treatment depends on the age of the child at the time of diagnosis and may include traction, casting and/or surgery.

**Juvenile Rheumatoid Arthritis** is the most common arthritic condition of childhood. It is a systemic inflammatory disease that involves the joints, connective tissues and vicera. Juvenile rheumatoid arthritis is not a rare disease with over a quarter of million children in the United States with the disorder. This disorder has three distinct methods of onset and the symptoms vary with each. Symptoms may include fever, rash, abdominal pain, pleuritis, pericarditis, and an enlarged liver and spleen, and warm, swollen and tender joints. There are no cures for juvenile rheumatoid arthritis. Drug therapy and exercise are the mainstays of treatment.

**INBORN ERRORS OF METABOLISM**

**Phenylketonuria** (PKU) is a genetic disorder caused by the faculty metabolism of phenylalanine, an amino acid essential to life and found in all protein foods. The hepatic enzyme phenylalanine hydroxylase, normally needed to convert phenylalanine into tyrosine is missing. PKU results in severe retardation evidenced in infancy. The baby appears normal at birth but begins to show delayed development at about four to six months of age. Early detection and treatment are paramount. Several screening tests are used in an effort to prevent or confirm the diagnosis of PKU. Treatment consists of close dietary management throughout the child's life.

**CHROMOSOMAL ABNORMALITIES**

**Down's Syndrome** is a congenital defect of the embryo. There are three known causes of Down's syndrome, all of which involve abnormalities of the chromosomes. In the most common type, trisomy 21 syndrome, the total chromosome count is 47 instead of the normal 46. It is the result of non-disjunction, the failure of a chromosome to follow the normal separation process into daughter cells. The physical characteristics of Down's

Syndrome, which are apparent at birth, are close-set and upward slanting eyes, small head, round face, flat nose, and a protruding tongue that interferes with sucking and mouth breathing. Also, the hands of the baby are short and thick and the little finger is curved. There is a deep straight line across the palm, which is called the simian crease. There is also a wide space between the first and second toes. Physical growth and development may be slower than normal. The child is mentally retarded. Also, the child with Down's Syndrome has poor resistance to infection. However, the widespread use of antibiotics has increased the life span of these children.

**THE BLOOD**

**Iron Deficiency Anemia** - The most common nutritional deficiency of children which is due to insufficient amounts of iron in the body. The incidence is highest during infancy and adolescence, two rapid growth periods. Anemia (an, without + emia, blood) is a condition in which there is a reduction in the amount and size of the red blood cells or in the amount of hemoglobin, or both. The critical features are related to the decrease in the oxygen-carrying capacity of the blood. The symptoms of iron deficiency anemia are pallor, irritability, anorexia and a decrease in activity. Anemia responds well to a regimen of oral iron supplements lasting from six to eight weeks.

**Sickle Cell Disease** is an inherited defect in the formation of hemoglobin. It occurs mainly in black populations, but is also carried by some people of Arabian, Greek, Maltese, Sicilian, and other Mediterranean races. Sickling due to decreases in blood oxygen may be triggered by dehydration, infection, physical or emotional stress or exposure to cold. Laboratory examination of the affected child's blood shows that the red blood cell has changed its shape to resemble that of a sickle blade, from which the name of the disorder is derived. Sickle cells are quickly removed from the blood and the body is left without enough red blood cells to supply the needed oxygen. Symptoms of sickle cell anemia usually appear after six months of age and include leg ulcers, swelling of hands and feet, slow growth, jaundice, painful joints and severe pain in the chest, abdomen, arms and legs. There is no cure for sickle cell anemia, however, treatment is available which includes medication for pain, antibiotics, increased fluid intake, transfusion, bed rest and surgery.

**Leukemia** (leuko, white + emia, blood) is a malignant disease of the blood-forming organs of the body that results in an uncontrolled growth of immature white blood cells. The most common symptoms during the initial phase of the illness are low-grade fever, pallor, tendency to bruise, leg and joint pain, listlessness and enlargement of lymph nodes. As the disease progresses the liver and spleen enlarge. Treatment includes chemotherapy, bone marrow transplants and immunotherapy.

**THE LUNGS**

**Cystic fibrosis** is a generalized disorder of the outward secreting or exocrine glands, in particular the mucous and sweat glands. This disease affects many parts of the body but particularly the lungs and sweat glands. The condition is believed to be inherited as

a recessive trait from both parents who are carriers of the disease but do not show any symptoms. Treatment includes antibiotic control of pulmonary infection and surgery.

**NERVOUS SYSTEM**

**Bacterial meningitis** is an inflammation of the meninges, the covering of the brain and spinal cord. The symptoms of meningitis result mainly from intracranial irritation and may be preceded by a cold. There is severe headache, drowsiness, delirium, irritability, restlessness, fever, and vomiting. Another symptom is stiffness of the neck and spine. Convulsions are common and coma may occur fairly early in the older child. Wide spectrum antibiotics are used to treat bacterial meningitis. Vaccines are available for Types A, B and C.

**Cerebral Palsy** is a term used to refer to a group of non-progressive disorders that affect the motor centers of the brain. It is not fatal in itself, but at present there is no cure. The disease is caused by many factors, including birth injuries, neonatal anoxia, subdural hemorrhage, and infections such as meningitis and encephalitis. Lead poisoning, head injuries and febrile illness are sometimes responsible during the toddler period. The symptoms vary from child to child and may include mental and/or physical retardation. Stretching exercises, cast and splints are used to prevent shortening of the muscles and other deformities. The child may require braces, crutches, or a wheel chair for mobility. Also, the child may require orthopedic surgery.

**Epilepsy** is characterized by recurrent paroxysmal attacks of unconsciousness or impaired consciousness that may be followed by alternate contraction and relaxation of the muscles or by disturbed feelings or behavior. It is a disorder of the central nervous system in which the neurons or nerve cells discharge in an abnormal way.

Tonic-Clonic (Grand Mal) seizures are the most common and dramatic seizure. Onset is abrupt. During the tonic phase the body stiffens and the individual may simultaneously lose consciousness and drop to the floor from a standing or sitting position. This may be preceded by an aura, which is a particular sensation such as dizziness, visual images, nausea, headache, or an ascending feeling of abdominal discomfort.

Absence (Petit Mal) seizures are characterized by transient loss of consciousness. They originate from the central portion of the brain and cortex and last less than 30 seconds. They may be associated by upward rolling of the eyes, rhythmic nodding of the head, or slight quivering of the limbs. Anti-convulsive drug therapy is the normal method of treatment.

**THE MUSCULAR SYSTEM**

**Muscular dystrophies** are a group of disorders in which progressive muscle degeneration occurs. The childhood form (Duchenne Muscular Dystrophy) is the most common type. It is a sex linked inherited disorder occurring only in boys. Mothers are likely carriers for the disease. The onset is generally between two and six years of age. Symptoms include a waddling gait, slowness in running or climbing, and enlarged,

rubbery muscles. Treatment is mainly supportive and consists of bracing, weight control and surgery for joint contractures.

**CIRCULATORY SYSTEM**

**Acute rheumatic fever** belongs to a group of disorders known as collagen diseases. Their common feature is the destruction of connective tissue. Rheumatic fever, a multi-system disease, is particularly detrimental to the heart. Symptoms range from mild to severe and may not occur for several weeks after a streptococcal infection. Classic symptoms are wandering joint pains, Sydenham's chorea (a nervous disorder and rheumatic carditis). Other symptoms may include fever, pallor, fatigue, anorexia and unexplained nosebleeds. Treatment is aimed at preventing permanent damage to the heart which is accomplished by antibacterial therapy, physical and mental rest and relief of pain and fever.

**ENDOCRINE SYSTEM**

**Diabetes** is a chronic metabolic condition in which the body is unable to utilize carbohydrates properly, owing to a deficiency of insulin, and internal secretion of the pancreas. Insulin deficiency leads to impairment of glucose transport (sugar cannot pass into the cells). The body is unable to store and utilize fats properly. There is a decrease in protein synthesis. When the blood glucose level becomes dangerously high, glucose spills into the urine and diuresis occurs. Type 1 diabetes is the most common endocrine/metabolic disorder of childhood. Untreated diabetes can lead to coma and death. The symptoms of diabetes appear more rapidly in children. The individual complains of excessive thirst, excretes large amounts of urine and is constantly hungry. Also, an insidious onset with lethargy, weakness and weight loss is common. Anorexia may be seen. Treatment for diabetes includes special diet and insulin management.

*Updated 1999

MEMORANDA HISTORY: